REMARKS

In the Final Office Action, the Examiner rejected claims 1-4 and 6-22. By this paper, the Applicants hereby amend claims 1, 11, and 17 and add two new independent claim 23 and 25 and two new dependent claims 24 and 26. These new claims do not add any new matter. Upon entry of the amendments, claims 1-4 and 6-26 will be pending in the present patent application. The Applicants respectfully request reconsideration and allowance of the pending claims in view of the foregoing amendments and the following remarks.

Rejections Under 35 U.S.C. § 103(a)

In the Final Office Action, the Examiner rejected claims 1-4 and 6-22 under 35 U.S.C. § 103(a) as being unpatentable over Philips (US Patent No. 6,792,399 B1, hereinafter "Philips") in view Henley (Patent No. EP1102187 A2, hereinafter "Henly"). The Applicants respectfully traverse these rejections in view of the foregoing amendments and the following remarks.

Legal Precedent

First, the pending claims must be given an interpretation that is reasonable and consistent with the *specification*. *See In re Prater*, 415 F.2d 1393, 1404-05, 162 U.S.P.Q. 541, 550-51 (C.C.P.A. 1969) (emphasis added); *see also In re Morris,* 127 F.3d 1048, 1054-55, 44 U.S.P.Q.2d 1023, 1027-28 (Fed. Cir. 1997); *see also* M.P.E.P. §§ 608.01(o) and 2111. Indeed, the specification is "the primary basis for construing the claims." *See Phillips v. AWH Corp.*, No. 03-1269, -1286, at 13-16 (Fed. Cir. July 12, 2005) (*en banc*). One should rely *heavily* on the written description for guidance as to the meaning of the claims. *See id.*

Second, interpretation of the claims must also be consistent with the interpretation that *one of ordinary skill in the art* would reach. *See In re Cortright*, 165 F.3d 1353, 1359, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); M.P.E.P. § 2111. "The inquiry into

how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation." *See Collegenet, Inc. v. ApplyYourself, Inc.*, No. 04-1202, -1222, 1251, at 8-9 (Fed. Cir. August 2, 2005) (quoting *Phillips*, No. 03-1269, -1286, at 16). The Federal Circuit has made clear that derivation of a claim term must be based on "usage in the ordinary and accustomed meaning of the words amongst artisans of ordinary skill in the relevant art." *See id.*

Third, the burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d. 1430 (Fed. Cir. 1990). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). The Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). Moreover, a statement that the proposed modification would have been "'well within the ordinary skill of the art'" based on individual knowledge of the claimed elements cannot be relied upon to establish a *prima facie* case of obviousness without some *objective reason to combine* the teachings of the references. *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993); *In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d. 1313, 1318 (Fed. Cir. 2000); *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 U.S.P.Q.2d. 1161 (Fed. Cir. 1999).

Fourth, when prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Federal Circuit has warned that the Examiner must not, "fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *In re Dembiczak*, F.3d 994, 999, 50 U.S.P.Q.2d 52 (Fed. Cir. 1999) (quoting *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983)).

Features of Independent Claims 1, 11, and 17 Missing from References

Specifically, amended independent claim 1 recites, *inter alia*, a system for assessing and optimizing crude selection comprising "a predictive engine ... wherein the predictive engine is configured to assess similarity of the crude characteristic data and the crude processing data with input crude characteristic data and input crude processing data, respectively, to output statistical best matches with the data stored in the database". Amended independent claim 11 recites, *inter alia* a method for assessing and optimizing crude selection comprising the steps of, "assessing similarity of the crude characteristic data and the crude processing data with input crude characteristic data and input crude processing data, respectively, to output statistical best matches with the data stored in the database." Amended independent claim 17 recites, *inter alia*, a computer readable medium storing a set of instructions configured for execution by at least one processor for performing the steps of "assessing similarity of the crude characteristic data and the crude processing data with input crude characteristic data and input crude processing data, respectively, to output statistical best matches with the data stored in the database."

Philips fails to teach or suggest the foregoing feature of amended independent claims 1, 11, and 17. Philips discloses a technique for forecasting the values of variables, such as the price of a share of stock or commodity. In particular, Philips discloses a technique for providing combination forecasts (obtained from a group of forecasters) for a value of a financial and/or economic measure that represents an aspect of an existing economic environment. However, such a technique for providing combination forecasts is not equivalent or even similar to a technique for assessing similarity of crude characteristic data and crude processing data with input crude characteristic data and input crude processing data, respectively, to output statistical best matches with the data stored in the database as recited by the present claims. Applicants have carefully reviewed the sections (column 9, lines 34-44 and column 56, lines 47-56) referenced by the Examiner and submit that these sections fail to disclose assessing similarity of crude characteristic data and crude processing data with input crude characteristic data and input crude processing data, respectively, to output statistical best matches with the data stored in the database.

The secondary reference of Henly fails to obviate the deficiencies in the teachings of Philips. Henly discloses a process for the prediction and the optimization of the output of a plant producing products from incoming materials. Applicants have carefully reviewed the sections (paragraph 0004 and 0012) referenced by the Examiner and submit that these sections fail to disclose assessing similarity of crude characteristic data and crude processing data with input crude characteristic data and input crude processing data, respectively, to output statistical best matches with the data stored in the database. Instead, these sections relate to a process and method for the prediction of the properties of and the optimization of a plant's output of products from a source or sources of raw material. For example, Henly specifically discloses that "the computing device will determine the accurate properties of the outcoming product and the optimum value to be extracted for a production run based on the available data." Henly, paragraph [0010]

(emphasis added). By further example, Henly discloses one embodiment in which "a method is disclosed utilizing linear and non linear equations to more accurately predict the cetane number, pour point, and/or other properties of the resulting fuel product." Henly, paragraph [0011] (emphasis added). For at least this reason, among others, the hypothetical combination of Philips and Henly cannot support a *prima facie* case of obviousness of the present claims.

In short, neither of the references teaches or suggests assessing similarity of crude characteristic data and crude processing data with input crude characteristic data and input crude processing data, respectively, to output statistical best matches with the data stored in the database. Consequently, no combination of the references could render such features obvious. In view of the above-noted distinctions, Applicants submit that claims 1, 11 and 17 are neither the same as, nor in any way taught or suggested by Philips or Henly taken either alone or in hypothetical combination. In view of the foregoing deficiencies in the teachings of the prior art, the references cannot establish a *prima facie* case of obviousness of independent claims 1, 11 and 17. Accordingly, these claims are believed to be clearly patentable over the cited combination. Dependent claims 2-4 and 6-10, 12-16 and 18-22 depend from allowable independent claims 1, 11 and 17. Accordingly, these claims are believed to be clearly patentable over the cited combination by way of these dependencies and by way of additional features recited in each respective claim.

For these reasons, among others, the Applicants respectfully request withdrawal of the foregoing rejections under 35 U.S.C. § 103 in view of Philips and Henly.

Dependent claims 2, 12 and 18.

Dependent claim 2 recites, *inter alia*, that "the predictive engine takes as input crude information corresponding to at least one crude slate and at least one refinery

operating parameter and/or condition and uses desirability metrics to assess similarity of the input to data in the database". Dependent claim 12 recites, *inter alia*, "taking as input crude information corresponding to the at least one crude or crude blend and at least one refinery operating parameter and/or condition and using desirability metrics to assess similarity of the input to data in the database, including the at least one stored crude or crude blend." Dependent claim 18 recites, *inter alia*, "taking as input crude information corresponding to the at least one crude or crude blend and at least one refinery operating parameter and/or condition and using desirability metrics to assess similarity of the input to data in the database, including the at least one stored crude or crude blend."

Philips fails to teach or suggest the foregoing feature of dependent claims 2, 12, and 18. Philips discloses a technique for forecasting the values of variables, such as the price of a share of stock or commodity. In particular, Philips discloses a technique for providing combination forecasts (obtained from a group of forecasters) for a value of a financial and/or economic measure that represents an aspect of an existing economic environment. Applicants have carefully reviewed the sections (column 11, lines 40-54 and column 10, lines 59-67) referenced by the Examiner and submit that these sections fail to disclose taking as input crude information corresponding to the at least one crude or crude blend and at least one refinery operating parameter and/or condition and using desirability metrics to assess similarity of the input to data in the database, including the at least one stored crude or crude blend.

Henly fails to obviate the deficiencies in the teachings of Philips. Henly discloses a process for the prediction and the optimization of the output of a plant producing products from incoming materials. Applicants have carefully reviewed the sections (paragraph 0004 and 0012) referenced by the Examiner and submit that these sections fail to disclose taking as input crude information corresponding to the at least one crude or crude blend and at least one refinery operating parameter and/or condition and using desirability metrics to assess similarity of the input to data in the database, including the

at least one stored crude or crude blend. Instead, these sections relate to a method for the prediction of the properties of and the optimization of a plant's output of products from a source or sources of raw material.

The Examiner has not shown the requisite motivation or suggestion to modify or combine the cited references to reach the present claims. The Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). Applicants challenge the Examiner to produce *objective evidence* of the requisite motivation or suggestion to combine the cited references, or remove the foregoing rejection under 35 U.S.C. § 103.

In view of the foregoing deficiencies in the teachings of the prior art, the references cannot establish a *prima facie* case of obviousness of claims 2, 12 and 18. Accordingly, these claims are believed to be clearly patentable over the cited combination. Their reconsideration and allowance are respectfully requested.

For at least these reasons, among others, the Applicants respectfully request withdrawal of the foregoing rejections under 35 U.S.C. § 103.

New Claims

As noted above, the Applicants hereby add new claims 23-26. These claims do not add any new matter. Moreover, these new claims recite a variety of features that are missing from the cited references, taken alone or in hypothetical combination, as emphasized below.

New independent claim 23 recites "a crude analyzer configured to compare a selected crude type and a selected refinery parameter with historical data comprising

crude data related to a plurality of crude types and refinery data related to a plurality of refineries, wherein the crude analyzer is configured to identify one or more crude types and one or more refinery parameters in the historical data that are *statistically similar* to the selected crude type and the selected refinery parameter, respectively; and a refinery optimizer configured to improve a refining process for the selected crude type and the selected refinery parameter based on the one or more crude types and the one or more refinery parameters identified by the crude analyzer." The cited references, taken alone or in hypothetical combination, fail to teach or suggest these claim features. The cited references do not include any sort of comparison, much less an identification based on statistical similarity.

New independent claim 25 recites "comparing a selected crude type and a selected refinery parameter with historical data comprising crude data related to a plurality of crude types and refinery data related to a plurality of refineries, wherein comparing a selected crude type and a selected refinery parameter comprises identifying one or more crude types and one or more refinery parameters in the historical data that are *statistically similar* to the selected crude type and the selected refinery parameter, respectively; and improving a refining process for the selected crude type and the selected refinery parameter based on the one or more crude types and the one or more refinery parameters identified in the comparing step." The cited references, taken alone or in hypothetical combination, fail to teach or suggest these claim features. The cited references do not include any sort of comparison, much less an identification based on statistical similarity.

Conclusion

In view of the amendments and remarks set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: November 17, 2006

Tait R. Swanson
Reg. No. 48,226
FLETCHER YODER
P.O. Box 692289
Houston, TX 77269-2289
(281) 970-4545